

White Paper Report

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In the summer of 2010, the Litchfield Historical Society received a National Endowment for the Humanities Sustaining Cultural Heritage Planning Grant of \$39,500 to assess the conditions of the museums buildings and the collections and to advise the staff on appropriate environmental parameters for the collections' storage areas and galleries. The Society hired Faesy-Smith Architects, Fuss & O'Neill engineers, and Rick Kerschner, Director of Preservation and Conservation at the Shelburne Museum to carry out the project. The Society's ultimate goal is to create a preservation environment that provides the best possible conditions for the perpetuation of the collection with the least possible consumption of energy

Litchfield Historical Society: Background

The town of Litchfield, situated atop a hill in Northwestern Connecticut, encompasses 57.3 square miles and has a population close to 8,000. The Historical Society draws its visitation from the local community as well as from the many national and international tourists to the area. Litchfield County is a well-known tourist destination, second only to Mystic as the most popular in the state. Litchfield village, a National Landmark District, is comprised of many examples of Colonial Revival homes, which together with summer gardens and spectacular fall foliage draw large numbers of vacationing families and organized tour groups. Last season the museums drew visitors from 39 states and 27 foreign countries. The Litchfield Historical Society is a private non-profit organization founded in 1856. The Society owns and occupies three buildings that are integral to the architectural fabric of the town of Litchfield. The Noyes Memorial Building, constructed on Litchfield's green in 1901, is the only Beaux Arts building in town. The Tapping Reeve House (1774) and the Litchfield Law School (1784) the first law school in America are National Historic Landmark sites and rank among the most historically important properties in Litchfield. In 2007, the Society completed construction on the Pamela Cunningham Copeland Curatorial Center located behind the Tapping Reeve House. This state of the art collections storage

facility resembles an 18th century barn on the exterior seamlessly blending the building into the historic fabric of the site.

The Noyes Memorial Building houses the Litchfield History Museum, the Helga J. Ingraham Memorial Library, collections storage spaces, and staff offices. The Tapping Reeve House & Law School, located approximately half a block from the Noyes Memorial Building, also contains a secure, climate-controlled storage area. The sites allow for a variety of exhibitions, interpretive and educational programs, research opportunities, and special events.

Existing Conditions 2010

In 1991, the Society renovated the Noyes Memorial Building and installed a new HVAC system. Eighteen years later the system was showing its age. The system at the Tapping Reeve house was only ten years old in 2010, but also has its challenges. The Curatorial Center is only a few years old and the system is working very well. In general the temperature and RH levels in the Noyes Memorial Building and Tapping Reeve House fell within acceptable ranges of between 68 and 71° and 45 to 50% RH. .

The Tapping Reeve House and Noyes Memorial Building experienced occasional excursions of temperature and relative humidity but these were generally the result of a system malfunction which was quickly corrected. Both HVAC systems, however, are worked extremely hard, especially in the spring and fall when New England weather can swing between 80° and sunny to below freezing with snow. The strain placed on these systems to continually regulate the air being brought into the building was causing the machines to break down and expend enormous amounts of energy.

The Project

The grant project consultants, Rick Kerschner of the Shelburne Museum; Joe Marcucio of Fuss and O'Neill engineers and Robert Faesy and Rich Vail of Faesy-Smith Architects, visited the Society during the summer and early fall of 2010. Julie Leone who was then the Curator of Collections, worked closely with them, providing blueprints, information on each building's history, environmental readings for the various spaces, and access to each building. Each consultant also met with Joe Guenther, owner and operator of Accutemp

Heating and Cooling, the Society's contract HVAC company. Guenther was able bring the consultants up-to-date on the condition of the HVAC system in each building and discuss necessary repairs, replacements and challenges with each system.

Kerschner was the final consultant to visit the society and after he surveyed the collection the staff convened a meeting which included all the consultants, Leone, Society Director Cathy Fields, Curator of Library & Archives Linda Hocking; John LaGattuta, LHS board member and Chair of the Facilities Committee; and Joe Guenther, HVAC contractor. This meeting proved invaluable and allowed all of the participants to combine ideas and integrate their various areas of expertise into a single strategy for the Society.

The consultant reports offered a wide range of suggestions from easy fixes to major construction projects. The staff quickly moved forward on two fronts – grant applications for the long term projects and quick fixes wherever possible.

The first grant application was a National Endowment for the Humanities Sustaining Cultural Heritage Implementation Grant for \$400,000 submitted in the fall of 2010. The Implementation Grant project focuses on implementing passive alternatives to costly energy consuming HVAC systems including repairs to the exterior of the Noyes Memorial building to minimize water and air infiltration; refurbishment of lighting and shelving in collections storage spaces; and widening temperature and relative humidity parameters to minimize the use of HVAC systems. When repairs, refurbishments or replacements to the HVAC system are necessary, the Society will focus on finding the most cost effective and energy efficient solutions.

The quick fixes include implementing passive measures such as adjustments to temperature and relative humidity parameters. In the past, museum staff worked to adhere to the narrow environmental parameters of $70^{\circ} \pm 1^{\circ}$ and $50\% \text{ RH} \pm 2\%$ for the Noyes Memorial Building, Tapping Reeve House and Curatorial Center. The museum has used enormous amounts of energy and resources over time to maintain these conditions. New studies within the museum and conservation community have shown that these parameters are not only economically unrealistic in terms of energy expelled by the

constant running of HVAC systems but can also negatively impact museum collections. Jim Reilly of the IPI, Stefan Michalski of the Canadian Conservation Institute and Rick Kerschner of Shelburne Museum have all published and lectured on the need for museums to widen their environmental parameters both for the longevity of the collections and economic stability of the institutions. They agree that humidity should be maintained between 30% and 60% and temperatures kept cool while allowing for gradual seasonal variations. Passive measures, such as turning heat down in winter or implementing controlled shut offs of HVAC systems at night or when buildings are unoccupied are also being advocated by these experts. The Society began immediately to implement these new wider parameters and we have seen significant savings in electrical and oil bills. In the first full year of operation, after a few inexpensive tweaks to the HVAC system and changing temperature and humidity parameters, the Society's electrical bill dropped by 1/3. We hope to see additional savings after implementing the more extensive lighting and HVAC recommendations in the consultant reports. At the same time the Society is continuing to explore ways to implement more passive alternatives.

The Society received the NEH Implementation grant (for \$320,000) in the summer of 2011. Under this grant the Society is repairing degraded brick and masonry on the exterior of the Noyes Memorial Building to tighten the building envelope and prevent moisture infiltration; updating and repairing the existing HVAC system in the Noyes Memorial Building in a thoughtful and cost effective manner; installing an energy management system; purchasing PEM2 data loggers to more effectively monitor conditions in each building; updating and replacing inefficient, heat intensive lighting in the exhibition galleries and storage spaces; installing compact shelving to replace outdated and overcrowded stationary shelving in the Collections Storage room; and purchasing supplies to re-house specific collections.

The NEH planning and implementation grants helped the Society leverage additional funding for the project. The consultant reports made it very clear that the fixes to the HVAC and other changes would be meaningless if the Society did not stop water infiltration into the building.

In addition to the NEH implementation grant the Society received \$10,000 from the **1172 Foundation** and \$385,000 from **The Seherr-Thoss Foundation** for the in-kind replacement and refurbishment of the 100 year-old lead coated roof, gutters and leaders of the Noyes Memorial building. The Seherr-Thoss Foundation has required the Society to complete a ten-year maintenance plan as a condition of the grant. The Society staff used the consultant reports and worked with a contractor and the board building and grounds committee to draft a preliminary report. The Society has now retained a consultant firm, Advance Reserve Systems, to use these reports to develop a comprehensive plan which will include useful life and replacement costs of all building components.

The ARS report will also include a comprehensive plan detailing each air handling unit and mapping out how conditioned air moves throughout the building. HVAC contractor Joe Guenther will update this plan as he makes changes to the HVAC system.. We hope to provide the documentation and institutional history for future staff and HVAC technicians to manage and maintain the system effectively

These grants received to date do not cover all of the recommendations from the consultant reports, particularly repairs to and re-painting of the Tapping Reeve House. The Society is working with the Town of Litchfield to apply for State of Connecticut funding for a portion of the work and they are exploring other grant opportunities. The grant project helped the Society's Board of Trustees understand both the current and on-going needs of the organizations buildings and collections and so they have initiated a Capital Campaign to raise additional funds for immediate needs and to develop a maintenance endowment for future needs.

The NEH project has had immediate results in terms of the repairs and upgrades to the Society's buildings, but more importantly, will have a long term effect on the staff, board and community's understanding and commitment to the long term preservation of the buildings and collections.